

The Files

4 September 1956

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Trip and Progress Report [REDACTED] Task Order A & B with

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1. On 7 & 8 August 1956 in company with Mr. [REDACTED] of SFD/EA, I visited the plant of the [REDACTED] to determine the progress of subject contract and to request proposals for limited production of certain other material being developed under this contract. These contacted at [REDACTED] were:

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2. The first day's discussion dealt primarily with the 60 day programmer. Much of the basic circuitry of this unit has been established and the mechanical configuration has been largely finalized. The projected design of the unit will be somewhat smaller than that required of the technical specifications. The size indicated on the attached drawing will be 5.026" in length 2.395" in depth and approximately 2.5" in width. 5/8 of an inch of this depth is to be used as a battery container. It was suggested that the space allowed for the battery be deleted, thereby reducing the depth of the unit by 5/8 of an inch, but instead, include a plug to which an external battery could be connected. [REDACTED] agreed to this and will investigate methods of attaching this external battery. Programming will be accomplished by means of a patchcord arrangement, in which the 60 day period is divided into two parallel function intervals. One-sixty interval period will cover program times, the other sixty intervals will cover program rate, by using a rate patchcord, any of six rates may be selected for that given date. For the interval, there are seven selections and the patchcord for that identical date may be selected from any of those intervals. These patchcords are fitted with a miniature plug at one end and are permanently connected to the set, on the other end selection is made by inserting the plug in a miniature jackstrip, and for this special tools will be provided. Programming is accomplished by removing the unit from its case, at which time the drive spring is wound. The act of winding the main spring also sets the start mechanism. The programmed unit is returned to its case and the cover replaced. When installed in position for operation, the start button is pressed, which establishes zero time and activates the entire mechanism.

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3. [] was requested to submit a proposal for the production of thirty additional units. [] pointed out that this quantity of production would probably require the building of a certain amount of test equipment. I pointed out that specialized test equipment is allowed in some circumstances, however, prior approval must be made before such equipment can be fabricated or purchased. I also indicated that it would probably be desirable to have such a piece of equipment in our possession in view of the maintenance problem that is likely to exist on the units in the future. [] agreed to submit supplementary proposal which would include such test equipment that is necessary, as will be based on a 10% replacement.

4. The signal actuate device and the time event marker was discussed at some length. In all likelihood the time event marker will be an electro-mechanical device utilizing a clock-spring motor for the driving force. The timing sequence will be established by a series of relays and or a series of cascaded watch escape mechanisms. Time interval may be read to the nearest five seconds and will be delivered only upon demand. The timing will probably be readout as an audio voltage of varying level. It has been suggested that a audio frequency of approximately 800 cycles be used which will be applied to the "yes", "no", contacts in such manner that a "yes" signal will deliver approximately 500 millivolts at the output, and a "no" signal will apply approximately 200 millivolts at the output. The "yes", "no", intervals of the relay contacts will be read by a commutator which will operate only upon demand.

5. The signal actuate device will be designed to operate from the output of our video amplifier such that a signal from the pulse stretcher will be fed to the input of the signal actuate device. This will initiate the sequence of winding circuits and cause the mechanism to be put in operation for a predetermined length of time. This interval can be adjusted from the minimum of 1, to a maximum of 5 minutes of running time. It is estimated that approximately two milliseconds will be required to set the limit in full operation following a signal input pulse. During the last few seconds of rundown a series of contacts will be provided to actuate the time event marker and to provide a signal path for a reference tone. This reference tone may be 1000 cycles or any other frequency we choose. This reference tone is not a part of this contract, but must be provided by us. It has been suggested that an alternate signal channel be provided, such that the channel A signal timing will be fed to the recorder and during the last few seconds of rundown the signal will be deleted and in sequence will be given the reference tone and the time event marker. In this manner signal reference and time will be in sequence for a single channel recorder. The B signal timing will be such that the signal will be continuous and the time and reference will be impressed simultaneously on a multichannel recorder. A suggested timing event sequence is shown in the following sketch.

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Run time, adjustable 1 to 5 minutes
Wind up time, approx 2 milliseconds

"B" Signal
"A" Signal
Time Event Mark
Reference tone
Actuate

0 1 2 3 4 5

6. Because of the complexity of the electro-mechanical devices, and the fact that they are using watch movements, it is believed that some person or persons from this Agency should be trained in the basics of watch repair. With this thought, [redacted] and I, accompanied with [redacted] visited [redacted] We outlined the problems to [redacted] who agreed to work out a proposal, with [redacted] for submission to us for our approval. This will allow us to train a certain number of people to meet the minimum requirements for maintenance on these particular systems.

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Attachment:

A drawing of 60 day programmer

CC-E/R&D-EP/FCS:mjr (4 September 1956)

cc: R&D Subject File
Monthly Report
SPD/EA
Lab
Dev-ep

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